

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

CONDITIONAL MAJOR DRAFT PERMIT NO. F-06-026

STATEWIDE ENVIRONMENTAL SERVICES

318 BROAD STREET

CAMPBELLSVILLE, KY

JULY 27, 2006

MARTHA ALLMAN, REVIEWER

SOURCE PLANT I.D.#: 21-217-00030

SOURCE A.I. #: 4010

ACTIVITY #: APE20060001

SOURCE DESCRIPTION:

Statewide Environmental Services, Inc. (SWES) submitted an application on June 29, 2001 and a revised application on August 11, 2004 for their source wide permit. Supplementary information was received on March 11, 2005 and April 8, 2006, in response to notices of deficiencies issued on September 13, 2004, February 22, 2005 and March 13, 2006. With respect to previous permitting actions, a construction permit was issued on November 4, 1993. On June 2, 1995, the Division issued a letter acknowledging successful completion of compliance demonstration, acknowledging receipt of a complete application, and indicating that a permit would be forthcoming. No records of that permit exist. Another letter was issued dated December 9, 1996 approving coverage under 401 KAR 50:031. By letter dated March 19, 2001, the Division advised all 401 KAR 50:031 sources to file a Title V permit application by June 30, 2001. That requirement was met by the June 29, 2001 submittal. An additional revised application was received on April 8, 2005.

SWES provides Low Temperature Thermal Desorption services¹ that uses heat to separate petroleum hydrocarbons from excavated soils. Petroleum contaminated soil is placed into a screened-hopper feed system and transferred by conveyor into a rotary kiln. The conveyor contains an accumulating scale system to record the total process stream. The kiln feed rate is adjustable to allow for site variation of soil moisture, contaminant type, and contaminant concentration.

The kiln is approximately 5 feet in diameter by 25 feet long. The residence time in the kiln is controlled by the feed rate and variation of the drum speed. The heat source to the kiln is a 51 mmBtu burner burning No. 2 low-sulfur diesel fuel. Exhaust gases from the kiln range from 275 °F-600 °F to ensure evaporation of moisture and volatile contaminants in the soil. The soil exits the kiln to either a storage site or directly into a truck for transport to a fill area. The exhaust gases from the kiln are drawn into a baghouse for particulate control.

¹

Also known as low-temperature thermal volatilization, thermal stripping, and soil roasting.

SWES has requested to be classified as a Synthetic Minor source and has proposed voluntary limits of 35 tons/hour and operational limit of 2080 hours per year to limit emissions. However, the emission calculations assumed that 60% of VOCs are destroyed, as opposed to simply being evaporated. This was a point of contention in SWES' initial construction application and ultimately, the 1993 construction permit established limits based upon the assumption that VOCs would be emitted rather than destroyed. SWES was required to conduct soil sampling and testing to ensure that levels of contaminants would remain below limits established in 401 KAR 63:022(repealed), New or modified sources emitting toxic air pollutants.

During this application process, SWES was again afforded the opportunity to demonstrate that VOCs are not emitted but rather destroyed. However, SWES has failed to provide support for its contention, and the Division has not been able to locate any independent documentation to support the claim of VOC destruction for a similar process that does not include an afterburner, as SWES' process does not², or other form of VOC control, such as activated carbon. Therefore, this permit is being issued under the assumption that 100% of the VOCs are emitted and not destroyed and containing operating limitations to limit emissions below that of a major source. While SWES has voluntarily reduced the maximum operating rate from 50 tons/hour to 35 tons/hour, the maximum soil concentration rates reflected in the 1993 construction permit were developed to ensure hourly compliance at an operating rate of 50 tons/hour, whereas the limitation necessary to avoid major source classification is an annual limit. Therefore, the maximum soil-processing rate shall not exceed 50 tons/hour and the maximum amount of soil processed shall not exceed 55,000 tons in any 12 consecutive months.

By letter dated April 16, 2006, SWES advised the Division that it plans to conduct a stack test within the next 6 months to verify its application submittal and will update the application as needed upon receipt of the test results.

REGULATION APPLICABILITY:

Emission Unit 01-01 and 01-02 - Thermal Soil Remediation Unit and 51 mmBtu Burner

The following regulations are applicable to these emission units:

401 KAR 63:021 Existing Sources Emitting Toxic Air Pollutants;

401 KAR 59:010 New process operations applicable to emission units commenced on or after July 2, 1975.

This emission unit consists of the rotary kiln and the kiln's heat source, a 51 mmBtu diesel burner, and a fabric filter to control particulate emissions, constructed in 1993. 401 KAR 63:021, which requires maintenance of terms and conditions set under 401 KAR 63:022, New or modified

² Although SWES' original application included an afterburner, SWES elected not to install one, with the Division's concurrence provided that levels of toxic constituents not exceed adjusted significant levels. See letter dated March 9, 1992 from Hisham M. Saaid, Acting Director, Division for Air Quality to Mr. Curtiss Shewmaker, EIT, Shewmaker Environmental, Inc.

sources emitting toxic air pollutants, is the governing regulation over the VOC emissions resulting from the contaminated soil. Pursuant to 401 KAR 63:022, soil concentrations and emission rates shall not exceed the following limits for each compound:

| <u>Compound</u> | <u>Soil Concentration (ppmw)</u> | <u>Emission Rate</u> <u>(lb/hr.)</u> |
|-----------------|----------------------------------|---|
| Benzene | 37.4 | 3.74 |
| Toluene | 57.1 | 5.71 |
| Xylene | 66.3 | 6.63 |
| Ethyl benzene | 66.3 | 6.63 |
| Lead | 831 | .00187 |

For each soil remediation project, soil samples shall be obtained for analysis to ensure that maximum concentrations do not exceed the above limitations. One sample shall be taken for every 250 cubic yards of soil removed within 4 hours of removal and before processing any soil through the unit. The samples shall be analyzed by EPA approved test methods for total lead, benzene, toluene, ethyl benzene, and xylene. Compliance shall be demonstrated for each compound by multiplying the soil concentrations determined by testing, converted to lbs/ton, by the rate of soil processing, in tons/hour. This calculation shall be performed for each sample taken, and records shall be maintained to substantiate each factor used in the calculation.

Pursuant to 401 KAR 59:010, Section 3(1)(a), opacity shall not exceed 20% based upon a 6-minute average. When the unit is in operation, the permittee shall determine the opacity of emissions from the stack by EPA Reference Method 9 at least once per week, or more frequently if requested by the Division.

Pursuant to 401 KAR 59:010, Section 3(2), particulate matter emissions shall not exceed 30.57 lbs/hour based upon a 3-hour average. Compliance shall be demonstrated by the following calculation: The amount of soil processed in tons/hour times an emission factor of 2.9 lbs of PM/ton times (1-control efficiency of 0.99).

Emission Unit 02-01 and 03-01 - Pre-treatment and Post-treatment Soil Handling

The following regulation is applicable to these emission units:

401 KAR 63:010 Fugitive emissions is applicable to each affected facility which emits or may emit fugitive emissions and is not elsewhere subject to an opacity standard within the administrative regulations of the Division for Air Quality.

These emission units consist of contaminated and cleaned soil stockpiles, yard area, screened hopper feed system, conveyers, and a load out, constructed in 1993.

Pursuant to 401 KAR 63:010, Section 3, reasonable precautions shall be taken to prevent particulate matter from becoming airborne. Such reasonable precautions shall include, when applicable, but not be limited to the following:

- a. Application and maintenance of asphalt, oil, water, or suitable chemicals on roads, materials stockpiles, and other surfaces which can create airborne dusts;
- b. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials, or the use of water sprays or other measures to suppress the dust emissions during handling.
- c. Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne.
- d. The maintenance of paved roadways in a clean condition;
- e. The prompt removal of earth or other material from a paved street which earth or other material has been transported thereto by trucking or earth moving equipment or erosion by water.

Pursuant to 401 KAR 63:010, Section 3, discharge of visible fugitive dust emissions beyond the property line is prohibited.

EMISSIONS AND OPERATING CAPS DESCRIPTION:

Pursuant to 401 KAR 63:021, which adapted source wide limits established by 401 KAR 63:022, soil concentrations and emission rates shall not exceed the following limits for each compound:

| <u>Compound</u> | <u>Soil Concentration (ppmw)</u> | <u>Emission Rate (lb/hr.)</u> |
|------------------------|---|--|
| Benzene | 37.4 | 3.74 |
| Toluene | 57.1 | 5.71 |
| Xylene | 66.3 | 6.63 |
| Ethyl benzene | 66.3 | 6.63 |
| Lead | 831 | .00187 |

The maximum soil processing rate shall not exceed 50 tons/hour and the maximum amount of soil processed shall not exceed 55,000 tons in any 12 consecutive months.

CREDIBLE EVIDENCE:

This permit contains provisions, which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.

Past Permit Summary:

| Rev # | Permit Number | Log or Activity # | Complete Date | Issuance Date | Summary of Action |
|------------------|--------------------------|------------------------------|--------------------------|--------------------------|--------------------------|
| | C-93-161 | | | 11-4-1993 | Construction permit |
| | F-06-026 | APE2006001 | 4-28-2006 | | Initial operating |
| | | | | | |